Application No.: 10\579,739 Docket No.: 4918-0108PUS1

Reply to Quayle Office Action of May 22, 2009

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A liquid crystal display device of an in-plane switching mode which comprises a pair of polarizers which are a polarizer at an output side and a polarizer at an incident side and disposed at relative positions such that absorption axes of the polarizers are approximately perpendicular to each other and at least optically anisotropic member (A), optically anisotropic member (B) and a liquid crystal cell which are disposed between the pair of polarizers, wherein $n_{zA}>n_{yA}$ and $n_{xB}>n_{zB}$ when, with respect to optically anisotropic member (A) and optically anisotropic member (B), refractive indices in a direction of an inplane slow axis are represented by n_{xA} and n_{xB} , respectively, refractive indices in a direction of a thickness are represented by n_{zA} and n_{zB} , respectively, each measured using light having a wavelength of 550 nm, wherein the liquid crystal display device is in the following configuration (1) or configuration (2), wherein

(1) optically anisotropic member (A) and optically anisotropic member (B) are disposed between the polarizer at the incident side and the liquid crystal cell, the absorption axis of the polarizer at the output side and the in-plane slow axis of the liquid crystal of the liquid crystal cell under application of no voltage are disposed at relative positions parallel to each other, the in-plane slow axis of optically anisotropic member (A) and the in-plane slow axis of optically anisotropic member (B) are disposed at relative positions approximately parallel to each other, and the in-plane slow axis of optically anisotropic member (B) and the in-plane slow axis of the liquid crystal cell under application of no voltage are disposed at relative positions approximately parallel to each other, or

Docket No.: 4918-0108PUS1

Application No.: 10\579,739
Reply to Quayle Office Action of May 22, 2009

(2) optically anisotropic member (A) and optically anisotropic member (B) are disposed between the polarizer at the output side and the liquid crystal cell, the absorption axis of the polarizer at the incident side and the in-plane slow axis of the liquid crystal of the liquid crystal cell under application of no voltage are disposed at relative positions parallel to each other, the in-plane slow axis of optically anisotropic member (A) and the in-plane slow axis of optically anisotropic member (B) are disposed at relative positions approximately parallel to each other, and the in-plane slow axis of optically anisotropic member (B) and the in-plane slow axis of the liquid crystal cell under application of no voltage are disposed at relative positions approximately parallel to each other, and wherein

an in-plane retardation Re(A), a retardation in the direction of the thickness R_{th} (A) of optically anisotropic member (A), and an in-plane retardation $R_e(B)$, a retardation in the direction of the thickness $R_{th}(B)$ of optically anisotropic member (B) satisfy the following formulae:

$$70 \le R_{\rm e}(A) \le 120,$$
 $-65 \le R_{\rm th}(A) \le -25,$ $50 \le R_{\rm e}(B) \le 110$ and $25 \le R_{\rm th}(B) \le 70,$

wherein

$$\begin{split} & R_e \ (A) = (n_{xA} - n_{yA}) \times d_{A,} \ R_e \ (B) = (n_{xB} - n_{yB}) \times d_{B,} \\ & R_{th}(A) = [(n_{xA} + n_{yA})/2 - n_{zA}] \times d_{A,} \ R_{th}(B) = [(n_{xB} + n_{yB})/2 - n_{zB}] \times d_{B,} \end{split}$$

 d_A and d_B representing thicknesses of optically anisotropic member (A) and (B), respectively, and the units of retardations in the formulae described above are expressed by nm.

3

GMD/mua:tm

Docket No.: 4918-0108PUS1

Application No.: 10\579,739
Reply to Quayle Office Action of May 22, 2009

2. (Currently amended) A liquid crystal display device of an in-plane switching mode which comprises a pair of polarizers which are a polarizer at an output side and a polarizer at an incident side and disposed at relative positions such that absorption axes of the polarizers are approximately perpendicular to each other and at least optically anisotropic member (A), optically anisotropic member (B) and a liquid crystal cell which are disposed between the pair of polarizers, wherein $n_{zA} > n_{yA}$ and $n_{xB} > n_{zB}$ when, with respect to optically anisotropic member (A) and optically anisotropic member (B), refractive indices in a direction of an in-plane slow axis are represented by n_{xA} and n_{xB} , respectively, refractive indices in a direction in plane and perpendicular to the direction of an in-plane slow axis are represented by n_{yA} and n_{yB} , respectively, and refractive indices in a direction of a thickness are represented by n_{zA} and n_{zB} , respectively, each measured using light having a wavelength of 550 nm, wherein the liquid crystal display device is in the following configuration (1) or configuration (2), wherein

(1) optically anisotropic member (A) and optically anisotropic member (B) are disposed between the polarizer at the incident side and the liquid crystal cell, the absorption axis of the polarizer at the output side and the in-plane slow axis of a liquid-crystal of the liquid crystal cell under application of no voltage are disposed at relative positions parallel to each other, and the in-plane slow axis of optically anisotropic member (B) are disposed at relative positions approximately parallel to each other, the in-plane slow axis of optically anisotropic member (B) and the in-plane slow axis of the liquid crystal cell under application of no voltage are disposed at relative positions approximately perpendicular to each other, or

(2) optically anisotropic member (A) and optically anisotropic member (B) are

Docket No.: 4918-0108PUS1

Application No.: 10\S79,739
Reply to Quayle Office Action of May 22, 2009

disposed between the polarizer at the output side and the liquid crystal cell, the absorption axis of the polarizer at the output side and the in-plane slow axis of a liquid crystal of the liquid crystal cell under application of no voltage are disposed at relative positions perpendicular to each other, and the in-plane slow axis of optically anisotropic member (A) and the in-plane slow axis of optically anisotropic member (B) are disposed at relative positions approximately parallel to each other, the in-plane slow axis of optically anisotropic member (B) and the in-plane slow axis of the liquid crystal of the liquid crystal cell under application of no voltage are disposed at relative positions approximately perpendicular to each other, and wherein

an in-plane retardation Re(A), a retardation in the direction of the thickness $R_{th}(A)$ of optically anisotropic member (A), and an in-plane retardation $R_e(B)$, a retardation in the direction of the thickness $R_{th}(B)$ of optically anisotropic member (B) satisfy the following formulae:

$$30 \le R_e(A) \le 150$$
,

$$-90 \le R_{th}(A) \le -15$$
,

$$40 \le R_e(B) \le 150$$
 and

$$20 \leq R_{th}(B) \leq 75,$$

wherein R_e (A)= $(n_{xA}-n_{vA})\times d_A$, R_e (B)= $(n_{xB}-n_{vB})\times d_B$,

$$R_{th}(A) = [(n_{xA} + n_{yA})/2 - n_{zA}] \times d_A, R_{th}(B) = [(n_{xB} + n_{yB})/2 - n_{zB}] \times d_B,$$

d_A and d_B representing thicknesses of optically anisotropic member (A) and (B), respectively, and the units of retardations in the formulae described above are expressed by nm.

3.10. (Canceled)

Application No.: 10\579,739 Docket No.: 4918-0108PUS1

Reply to Quayle Office Action of May 22, 2009

11. (Previously presented) The liquid crystal display device according to Claim 1,

wherein an absolute value of a difference between n_{xA} and n_{zA} is 0.003 or smaller,

and an absolute value of a difference between n_{vB} and n_{zB} is 0.003 or smaller.

12. (Previously presented) The liquid crystal display device according to Claim 1,

wherein optically anisotropic member (A) comprises a layer selected from following

layers (i) to (iii):

(i) A layer comprising a material having a negative value of intrinsic

birefringence,

(ii) A layer comprising discotic liquid crystal molecules or lyotropic liquid

crystal molecules,

(iii) A layer comprising a photo-isomerizable substance.

13. (Previously presented) The liquid crystal display device according Claim 1,

wherein optically anisotropic member (A) is disposed at a position closer to the

liquid crystal cell than optically anisotropic member (B).

14. (previously presented) The liquid crystal display device according to Claim 2,

wherein optically anisotropic member (B) is disposed at a position closer to the

6

liquid crystal cell than optically anisotropic member (A).

15-20. (Canceled)

GMD/mua:tm